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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/809,841 | 03/26/2004 | Fumio Futami | 826.1940 | 8145 |

21171 7590 03/13/2007
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| EXAMINER |
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NGUYEN, PHILLIP

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| ART UNIT | PAPER NUMBER |
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2828

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/13/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/809,841 | Applicant(s) FUTAMI ET AL. | |
| | Examiner Phillip Nguyen | Art Unit 2828 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,5,9 and 10 is/are allowed.
- 6) ☒ Claim(s) 1-3,6-8 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 15-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/2007 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 6, and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with

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which it is most nearly connected, to make and/or use the invention. Claims 1, 6, and 11 recite “producing continuous emission light waves” which is not supported in the specification.

Therefore this limitation is not considered or treated as valid limitation in the claim.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4, 6, and 9 recite “the optical pulse sequence the spectrum” which is not clear what applicant intends to claim.

Claims 1, 4, 6, 9, 11, and 12 recite “an optical splitting unit splitting the optical pulse sequence the spectrum of which is expanded into light beams of respective frequencies” and claim 5 recites “said wavelength splitter and said wavelength coupler are a diffraction grating or an array waveguide filter” which are confusing. It is clearly indicated in the claims that “an optical pulse light source outputting an optical pulse sequence” then “an optical pulse shaping unit making a shape of an optical pulse output from said pulse light source into a super Gaussian pulse of a third harmonic order or higher”. This shaped pulse is later expanded by spectrum expanding unit. The expanded spectrum of shaped optical pulses are finally splitted. However, on page 9, lines 10-15, applicant discloses a liquid crystal spatial light modulator (LC-SLM) can be used as the pulse shaper. Applicant further describes LC-SLM, in Fig. 4, which includes two

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diffraction gratings 30 and 34. Therefore it is not clear if the “optical splitting unit” is actually an optical unit that is separated and distinct from the pulse shaper (LC-SLM) or the same unit.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (US 2002/0041618).

As to claims 1, 6, and 12, Watanabe teaches an multi-wavelength light source comprising an optical pulse light source outputting an optical pulse sequence with an optical pulse shaping unit making a shape of an optical pulse output from said optical pulse light source into a super Gaussian pulse of a third order or higher [page 3, paragraphs 46-50, and the resulting pulse is illustrated in figures 1A and 1B]. Watanabe also teaches a spectrum expanding unit expanding a spectrum of an optical pulse sequence composed of shaped optical pulses and an optical splitting unit splitting the optical pulse sequence, the spectrum of which is expanded into light beams of respective frequencies [figure 9 and paragraphs 110-112].

As to claims 2, 7, and 14, Watanabe et al. teaches that the spectrum expanding unit expands the spectrum by using an optical fiber as a nonlinear medium [paragraph 111 and figure 9].

As to claims 3 and 8, Watanabe et al. teaches the spectrum expanding unit expands the spectrum by using a highly nonlinear fiber or a holey fiber as a nonlinear medium [paragraph 57].

As to claim 11, Watanabe et al. teaches an apparatus comprising an optical pulse light source to output an optical pulse sequence, an optical pulse shaper to shape an optical pulse output from said optical pulse light source into a super Gaussian pulse of a third order or higher [page 3, paragraphs 46-50, and the resulting pulse is illustrated in figures 1A and 1B]. Watanabe also teaches a spectrum expander to expand a spectrum of the optical pulse sequence composed of shaped optical pulses from the optical pulse shaper, and an optical splitter to split the expanded spectrum of shaped optical pulses into light beams of respective frequencies [figure 9 and paragraphs 110- 112].

6. Claims 1, 6, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Javidi et al. (US 20020150242). Javidi discloses the claimed invention, especially in Fig. 1, a multi-wavelength light source, comprising: an optical pulse light source 245 outputting an optical pulse sequence; an optical pulse shaping unit 240, 250, ... 255 making a shape of an optical pulse output from said optical pulse light source into a super Gaussian pulse of a third order or higher; a spectrum expanding unit 260 expanding a spectrum of an optical pulse sequence composed of shaped optical pulses; and an optical splitting unit 270 splitting the optical pulse sequence the spectrum of which is expanded into light beams of respective frequencies, producing continuous emission light waves.

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Allowable Subject Matter

7. Claims 4-5 and 9-10 are allowed.

Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phillip Nguyen/

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MINSUN OH HARVEY
PRIMARY EXAMINER